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EXAMINER
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DANIELS, MATTHEW J

ART UNIT	PAPER NUMBER
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1732

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/722,131	Applicant(s) BASQUE ET AL.	
	Examiner Matthew J. Daniels	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-82 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 and 76-79 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12-75 and 80-82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/21/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-11 and 79, drawn to a clamp, classified in class 269, subclass 86.
  - II. Claims 12-75 and 80-82, drawn to methods of welding and sealing, classified in class 264, subclass 400.
  - III. Claim 76-78, drawn to a laser welding system, classified in class 250, subclass 396.
2. Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus can be used to practice another and materially different process, such as hanging clothes on a clothesline.
3. Inventions II and III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus can be used to practice another and materially different process, such as targeting military ordnance or as a weapons or signaling system.

4. Inventions I and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as a clamp for hanging clothes on a clothesline. See MPEP § 806.05(d). In the instant case, subcombination II has separate utility such as a military ordnance targeting or aerial signaling system.

5. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, recognized divergent subject matter, and because the inventions require different field of search, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Guy Houle on 21 March 2006, a provisional election was made with traverse to prosecute the invention of Group II, claims 12-75 and 80-82. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-11 and 76-79 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 12, 13, 21, 28, 33, and 54** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. **Claim 12** is drawn to “the area corresponding to a sealing volume” and subsequently that providing an incident laser intensity “for the purpose of sealing or cutting said films.” The second portion recited broadens the meaning of the claim because the first area corresponds *only* to a sealing volume, and not to a cutting volume. **Claim 13** appears to be drawn to a hypothetical situation, and appears to claim only that the device performs better than one lacking the claimed elements. These aspects, by themselves, do not set forth any method limitations which limit the stepwise process, and are therefore indefinite. **As to Claim 21**, “said area” lacks antecedent basis. **As to Claim 28**, “said cutting region” lacks antecedent basis. **As to Claim 33**, “said optical elements” lacks antecedent basis. **Claim 54** is rejected for “if required” in step iv because it is unclear whether this step is actually performed.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 26, 31, and 81** are rejected under 35 U.S.C. 102(b) as being anticipated by Kendall (USPN 6207925). **As to Claim 26**, Kendall teaches a method of optically sealing and

cutting flexible polymeric films with at least one laser beam having a shaped intensity profile (inherent), the method comprising:

shaping the at least one laser beam intensity profile by using an optical device to provide the desired intensity profile (inherent in that laser beams are provided),

superposing and bringing into contact at least two of said films together (3:55-65), and exposing an area of the films using appropriate optical elements (Fig. 1), to said desired intensity profile for the purpose of obtaining in one exposure step two sealed regions where the films are sealed together separated by a cut region where the films have been cut and wherein by the time the cut region is performed, the sealed regions are sealed (Fig. 1, the sealing and cutting are simultaneous).

While Kendall appear to be silent to the area being referred to as a seal-cut-seal volume, the Examiner submits that Kendall's sealed and cut volume could be referred to with this name, or any other. **As to Claim 31**, the laser beams are focused into small spots for the purpose of scanning along the volume of the films (2:45-67). **As to Claim 81**, Kendall teaches shaping the intensity profile of a laser beam by using an optical device to provide the desired profile (5:1-40), superposing and bringing into contact at least two sheets (Fig. 1), and exposing an area of the sheets to the laser to obtain two sealed regions separated by a cut regions wherein the sealing and cutting are simultaneous (Fig. 1).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 12-19 and 21-24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209). **As to Claim 12**, Kendall teaches a method of sealing or cutting optically with at least one laser beam flexible polymeric films, the method comprising:

Superposing and bringing into contact at least two films together (3:55-65),

Exposing an area of the films, the area corresponding to a sealing volume, to at least one laser beam, providing energy for the purpose of sealing or cutting (2:3-65).

Kendall appears to be silent to re-injecting an unabsorbed part of the incident intensity by a reflective device to improve efficiency. However, Nettesheim teaches re-injecting an unabsorbed part of the incident intensity by using a reflective device to improve efficiency (4:7-18 and Fig. 4).

It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nettesheim into that of Kendall because Kendall suggests that "any known means" (3:58-59) may be used to force the layers together, and Nettesheim provides one means, and because doing so would make Kendall's method particularly suitable for sealing and severing partially transparent films (Nettesheim, 4:15-18).

**As to Claims 13-16**, also see the rejection of Claim 13 above under 35 USC 112, second paragraph. The Examiner recognizes that all of the claimed effects and physical properties are not positively stated by the reference. Note however that the reference teaches all of the claimed process steps and process conditions (partially transparent films, re-transmitted energy,

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Nettesheim, 4:5-63), and thus the claimed effects would obviously have been achieved by carrying out the process disclosed. If it is Applicant's position that this would not be the case: (1) evidence would need to be presented to support Applicant's position, and (2) it would be the Examiner's position that the application contains inadequate disclosure in that there is no teaching as how to obtained the claimed effects. **As to Claims 17 and 18**, Kendall teaches focusing the film into a spot, which the Examiner interprets to be a small spot in view of Fig. 1, scanning the spot along the whole width of the films to obtain an elongated seal, and controlling the continuous scanning to obtain a high quality seal (2:49-67 and 3:55). **As to Claim 19**, see Kendall's mirror to scan the beam (Fig. 1, Item 8). **As to Claims 21-24**, the combination of Nettesheim into Kendall provides a superposing, interconnecting of two jaws to press and release the films after sealing or cutting (Nettesheim, columns 1 and 2), exposing the films through a window in one of the jaws (Fig. 4), re-injecting laser intensity back to the films by reflecting the unabsorbed laser intensity off a reflective surface of another of the jaws (Fig. 4), the volume being an intensity distribution essentially the same as the incident (both of Nettesheim's jaws have elliptical reflectors, 3:20-42), allowing for a three or four back-and-forth reflections from one jaw to the other (because Nettesheim's jaws are elliptical reflectors, the light would continue to reflect until it is fully absorbed).

11. **Claim 20** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209), and further in view of Osborne (USPN 4069080). Kendall and Nettesheim teach the subject matter of Claim 12 above under 35 USC 103(a). **As to Claim 20**, Kendall and Nettesheim appear to be silent to the beam being shaped



into a line wide enough to cover the whole width of the films to be sealed. However, Osborne teaches this aspect at 3:33-42. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Osborne into that of Kendall in order to save time (3:37-38).

12. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209), and further in view of Armitage (USPN 5260766). Kendall and Nettesheim teach the subject matter of Claim 21 above under 35 USC 103(a). **As to Claim 25**, Kendall clearly suggests monitoring the printed substrates with an optical detection assembly in the form of a photocell to scan and monitor the moving substrate (6:22-30), but Kendall appears to be silent to monitoring through an optical window of the clamp. However, Armitage teaches monitoring the sealing using an optical detector through an optical window of the clamp during cutting or sealing (2:1-41). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Armitage into that of Kendall in order to detect faulty seals before they reach the consumer.

13. **Claim 27** rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Guckenberger (USPN 5630308). Kendall teaches the subject matter of Claim 26 above under 35 USC 102(b). **As to Claim 27**, Kendall appears to be silent to a Gaussian profile, however, Guckenberger teaches a Gaussian profile (12:31-41). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Guckenberger into that of Kendall because such profiles have a very

high intensity and are therefore the most valuable for cutting and scoring (Guckenberger, 12:40-41).

14. **Claims 28 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925). Kendall teaches the subject matter of Claim 26 above under 35 USC 102(b). **As to Claims 28 and 29**, Kendall does not explicitly teach the sizes and filters of Claims 28 and 29, however, Kendall teaches that the degree of focus of the sealed and cut regions is a result effective variable (5:10-36), Kendall uses focusing lenses, and Kendall's focusing means would implicitly filter out some light (5:5-9).

15. **Claim 30** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Osborne (USPN 4069080). Kendall teaches the subject matter of Claim 26 above under 35 USC 102(b). **As to Claim 30**, Kendall appears to be silent to the beam being shaped into a line wide enough to cover the whole width of the films to be sealed. However, Osborne teaches this aspect at 3:33-42. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Osborne into that of Kendall in order to save time (3:37-38).

16. **Claims 32 and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Armitage (USPN 5260766). Kendall teaches the subject matter of Claim 26 above under 35 USC 102(b). **As to Claims 32 and 33**, Kendall clearly suggests monitoring the printed substrates with an optical detection assembly in the form of a

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photocell to scan and monitor the moving substrate (6:22-30), but Kendall appears to be silent to monitoring through an optical window of the clamp. However, Armitage teaches monitoring the sealing using an optical detector through an optical window of the clamp during cutting or sealing (2:1-41). The clamp of Armitage would be a shared optical element. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Armitage into that of Kendall in order to detect faulty seals before they reach the consumer.

17. **Claims 34, 36-48, and 51** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heydarpour (USPN 5911665) in view of Kendall (USPN 6207925) and Nettesheim (USPN 6387209). As to **Claim 34**, Heydarpour teaches a method for forming and filling pouches with liquid at high speed comprising:

- i) providing a vertical tube of polymeric filled being filled with liquid (12:1-15 and 9:26-50);
- ii) flattening and sealing (11:35-50)
- iv) providing a desire heat (5:47-51)
- v) obtaining two seals and severing the tube between the seals (11:44-12:28)

Heydarpour appears to be silent to the optical sealing clamps (ii), exposure to laser beams (iii), and optimizing the profile (iv). However, these aspects would have been prima facie obvious over Nettesheim and Kendall who teach optical sealing clamps (Nettesheim, Figs. 3 and 4) and laser beams having an optimized shape, profile, and power (Kendall, 5:1-35). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Nettesheim and Kendall into that of Heydarpour in order to provide

better control over the sealing operation (Kendall, 1:38-46) and because Nettesheim suggests the method for partially transparent films (4:15-20), which would have been desirable in Heydarpour's method. **As to Claim 36**, Nettesheim teaches the optical sealing clamp having two jaws which can be moved, both being contact and optical jaws wide enough to allow sealing or cutting of the whole width, and it would have been obvious to provide support means to provide the implicit clamping action of Nettesheim's method (Figs. 3-4). **As to Claims 37 and 38**, Nettesheim provides an optical window having an optical aperture (Fig. 4) which is transparent to light. **As to Claims 39 and 40**, Nettesheim's contact jaw has a profile to compress the walls of the tube together at the point of sealing or cutting, and opening the jaw would implicitly provide space for letting the tube or filled pouch pass through (Figs. 3-4). **As to Claims 41-45**, Nettesheim's reflectors re-inject any and all intensity that had not been absorbed by their reflective property of the clamps. By their curvature, these surfaces reflect the laser beam intensity an infinite number of times. **As to Claims 46 and 47**, Kendall provides a small spot which is scanned continuously to obtain an elongated seal (implicit in that the web is moving). **As to Claim 48**, Kendall uses a mirror (Item 8 in Fig. 1). **As to Claim 51**, Kendall teaches that the degree of focus of the sealed and cut regions is a result effective variable (5:10-36). Kendall also uses focusing lenses, and Kendall's focusing means would implicitly filter out some light (5:5-9).

18. **Claim 35** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heydarpour (USPN 5911665) in view of Kendall (USPN 6207925) and Nettesheim (USPN 6387209), and further in view of Kovacs (USPN 4532753). Heydarpour, Kendall, and Nettesheim teach the

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subject matter of Claim 34 above under 35 USC 103(a). **As to Claim 35**, the cited references appear to be silent to the claimed limitation, however, it is conventional in the art to provide the polymeric film in a roll, draw it over a former to produce an overlapped edge, seal and continuously feed. See Kovacs' teaching in Fig. 6. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Kovacs into that of Heydarpour in order to use a flat sheet of film instead of a tubular film.

19. **Claims 49 and 52** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heydarpour (USPN 5911665) in view of Kendall (USPN 6207925) and Nettesheim (USPN 6387209), and further in view of Osborne (USPN 4069080). Heydarpour, Kendall, and Nettesheim teach the subject matter of Claim 34 above under 35 USC 103(a). **As to Claims 49 and 52**, the cited references appear to be silent to the beam being shaped into a line wide enough to cover the whole width of the films to be sealed. However, Osborne teaches this aspect at 3:33-42. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Osborne into that of Heydarpour in order to save time (3:37-38).

20. **Claim 50** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heydarpour (USPN 5911665) in view of Kendall (USPN 6207925) and Nettesheim (USPN 6387209), and further in view of Guckenberger (USPN 5630308). Heydarpour, Kendall, and Nettesheim teach the subject matter of Claim 34 above under 35 USC 103(a). **As to Claim 50**, the cited references appear to be silent to a Gaussian profile, however, Guckenberger teaches a Gaussian profile

(12:31-41). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Guckenberger into that of Heydarpour because such profiles have a very high intensity and are therefore the most valuable for cutting and scoring (Guckenberger, 12:40-41).

21. **Claim 53** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heydarpour (USPN 5911665) in view of Kendall (USPN 6207925) and Nettesheim (USPN 6387209), and further in view of Armitage (USPN 5260766). Heydarpour, Kendall, and Nettesheim teach the subject matter of Claim 36 above under 35 USC 103(a). **As to Claim 53**, Kendall clearly suggests monitoring the printed substrates with an optical detection assembly in the form of a photocell to scan and monitor the moving substrate (6:22-30), but the cited references appear to be silent to monitoring through an optical window of the clamp. However, Armitage teaches monitoring the sealing using an optical detector through an optical window of the clamp during cutting or sealing (2:1-41). The clamp of Armitage would be a shared optical element. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Armitage into that of Heydarpour in order to detect faulty seals before they reach the consumer.

22. **Claims 54, 55, 58-70, 73, 80, and 82** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209). **As to Claim 54**, Kendall teaches a sealing and cutting method using at least one laser source comprising:

- iii) exposing the section of the package to at least one laser beam intensity for a time exposure interval to heat in a controlled manner, the intensity being shaped to provide a particular intensity profile (5:1-40);
- iv) providing a desired amount of heat to the section in order to perform a sealing and cutting operation (5:1-40)
- v) obtaining as a result of the sealing operation a seal across the section of the package, or two seals and a cut (Fig.1 and 5:1-40).

Kendall is silent to the steps (i) and (ii). However, these aspects would have been prima facie obvious over Kendall alone or Nettesheim because it would have been obvious to fill the packages upon which Kendall is performing the sealing operation in order to avoid sealing empty packages, and because Nettesheim teaches the optical sealing clamps (Figs. 3-4). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nettesheim into that of Kendall because Kendall suggests that “any known means” (3:58-59) may be used to force the layers together, and Nettesheim provides one means, and because doing so would make Kendall’s method particularly suitable for sealing and severing partially transparent films (Nettesheim, 4:15-18). **As to Claim 55**, Kendall clearly teaches two sheets (1:35-40 and elsewhere), and it would have been obvious to place product between the sheets for sealing. **As to Claim 58**, Nettesheim teaches the optical sealing clamp including two contact jaws, one being movable to allow opening and closing, allowing light to pass through, being wide enough to fit over the whole width, and support means to allow a controlled opening and closing (Figs. 3 and 4). **As to Claims 59-62**, Nettesheim’s jaw has an optical aperture, it is transparent to light, it applies pressure, and its support means would leave a

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free space when the jaw is open to allow passage of the tube and product (Figs. 3 and 4). **As to Claims 63-67**, Nettesheim's jaws would provide total reflection of a beam by their reflective surface and particular shape, and this reflection would occur an infinite number of times or until the total beam was absorbed. **As to Claims 68 and 69**, Kendall clearly teaches and suggests focusing to a spot, scanning continuously in time, and control of the scanning speed to obtain a desirable seal (5:1-40). **As to Claim 70**, Kendall's item 8 in Fig. 1 is a mirror. **As to Claim 73**, Kendall teaches that the degree of focus of the sealed and cut regions is a result effective variable (5:10-36). Kendall also uses focusing lenses, and Kendall's focusing means would implicitly filter out some light (5:5-9). **As to Claim 80**, Kendall teaches superposing and bringing two sheets into contact, exposing an area corresponding to a sealing volume to at least one laser beam to seal or cut the sheets. Kendall appears to be silent to the re-injecting. However, Nettesheim teaches an optical clamp that would provide a reflective device and would re-inject intensity into the sealing region and improve the efficiency. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nettesheim into that of Kendall because Kendall suggests that "any known means" (3:58-59) may be used to force the layers together, and Nettesheim provides one means, and because doing so would make Kendall's method particularly suitable for sealing and severing partially transparent films (Nettesheim, 4:15-18). **As to Claim 82**, Kendall teaches a sealing and cutting method using at least one laser source comprising:

- i) providing a partially formed package with its content being filled (obvious in that one would not seal an empty container)
- ii) superposing and bringing into contact the inner walls



- iii) exposing the section of the package to at least one laser beam intensity for a time exposure interval to heat in a controlled manner, the intensity being shaped to provide a particular intensity profile (5:1-40);
- iv) providing a desired amount of heat to the section in order to perform a sealing and cutting operation (5:1-40)
- v) obtaining as a result of the sealing operation a seal across the section of the package, or two seals and a cut (Fig.1 and 5:1-40).

Kendall is silent to optical sealing clamp of (ii). However, this aspect would have been prima facie obvious over Nettesheim's teaching of optical sealing clamps (Figs. 3-4). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nettesheim into that of Kendall because Kendall suggests that "any known means" (3:58-59) may be used to force the layers together, and Nettesheim provides one means, and because doing so would make Kendall's method particularly suitable for sealing and severing partially transparent films (Nettesheim, 4:15-18).

23. **Claims 56 and 57** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209) and Heydarpour (USPN 5911665). Kendall and Nettesheim teach the subject matter of Claim 54 above under 35 USC 103(a). **As to Claim 56 and 57**, Kendall appears to be silent to the tube and bags, however, Heydarpour teaches a method for forming and filling pouches or tubes with liquid (12:1-15 and 9:26-50). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Heydarpour into that of Kendall in order to provide a

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continuous and rapid container filling and sealing method and in order to avoid welding the vertical edges.

24. **Claims 71 and 74** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209), and further in view of Osborne (USPN 4069080). Kendall and Nettesheim teach the subject matter of Claim 54 above under 35 USC 103(a). **As to Claims 71 and 74**, the cited references appear to be silent to the beam being shaped into a line wide enough to cover the whole width of the films to be sealed. However, Osborne teaches this aspect at 3:33-42. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Osborne into that of Heydarpour in order to save time (3:37-38).

25. **Claim 72** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209) and further in view of Guckenberger (USPN 5630308). Kendall and Nettesheim teach the subject matter of Claim 54 above under 35 USC 103(a). **As to Claim 72**, the cited references appear to be silent to a Gaussian profile, however, Guckenberger teaches a Gaussian profile (12:31-41). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Guckenberger into that of Kendall because such profiles have a very high intensity and are therefore the most valuable for cutting and scoring (Guckenberger, 12:40-41).

26. **Claim 75** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendall (USPN 6207925) in view of Nettesheim (USPN 6387209) and further in view of Armitage (USPN 5260766). Kendall and Nettesheim teach the subject matter of Claim 58 above under 35 USC 103(a). **As to Claim 75**, Kendall clearly suggests monitoring the printed substrates with an optical detection assembly in the form of a photocell to scan and monitor the moving substrate (6:22-30), but the cited references appear to be silent to monitoring through an optical window of the clamp. However, Armitage teaches monitoring the sealing using an optical detector through an optical window of the clamp during cutting or sealing (2:1-41). The clamp of Armitage would be a shared optical element. It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Armitage into that of Heydarpour in order to detect faulty seals before they reach the consumer.

27. **Claims 12 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (USPN 4069080) in view of Nettesheim (USPN 6387209). **As to Claim 12**, Osborne teaches a method of sealing with at least one laser beam flexible polymeric films comprising superposing and bringing sheets into contact, and exposing an area to a laser beam for the purpose of sealing (4:7-19 and 3:30-42). Osborne is silent to the increasing the intensity by re-injecting. However, Nettesheim teaches the re-injecting (Figs. 3 and 4). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Nettesheim into that of Osborne in order to reduce the number of lasers required, and because Osborne suggest that energy should be applied from both sides to reduce the risk of

burning. **As to Claim 20**, Osborne suggests that it is desirable to provide a wide beam which covers substantially the whole width to avoid the need to scan the beam (3:30-45).

28. **Claims 26 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Osborne (USPN 4069080) in view of Kendall (USPN 6207925). **As to Claim 26**, Osborne teaches a method for optically sealing by shaping a laser beam intensity profile using an optical device to provide a desired intensity profile, superposing and bringing the sheets into contact, and exposing an area of the films for the purpose of obtaining a seal (2:10-45 and 3:30-45). Osborne appears to be silent to the sealing and cutting at the same time. However, Kendall teaches that this aspect is known (Fig. 1). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Kendall into that of Osborne in order to avoid a separate cutting operation. **As to Claim 30**, Osborne suggests that it is desirable to provide a wide beam which covers substantially the whole width to avoid the need to scan the beam (3:30-45).

29. **Claim 54** is rejected under 35 U.S.C. 103(a) as being unpatentable over Heydarpour (USPN 5911665) in view of Kendall (USPN 6207925) and Nettesheim (USPN 6387209). **As to Claim 54**, Heydarpour teaches a method for sealing or sealing and cutting packages made with polymeric films comprising the steps of:

- i) providing a partially or completely formed package filled with its content;
- ii) superposing and bringing into contact the inner walls
- iii) heating in a controlled manner

- iv) providing a desired amount of heat
- v) obtaining a cut region between two seals.

Heydarpour appears to be silent to the lasers, and the optical clamps, and the desired profiles. However, these aspects would have been prima facie obvious over Nettesheim and Kendall who teach optical sealing clamps (Nettesheim, Figs. 3 and 4) and laser beams having an optimized shape, profile, and power (Kendall, 5:1-35). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the methods of Nettesheim and Kendall into that of Heydarpour in order to provide better control over the sealing operation (Kendall, 1:38-46) and because Nettesheim suggests the method for partially transparent films (4:15-20), which would have been desirable in Heydarpour's method.

30. **Claims 71 and 74** are rejected under 35 U.S.C. 103(a) as being unpatentable over Heydarpour (USPN 5911665) in view of Kendall (USPN 6207925) and Nettesheim (USPN 6387209), and further in view of Osborne (USPN 4069080). **As to Claims 71 and 74**, Heydarpour, Kendall, and Nettesheim appear to be silent to the claimed beam profile. However, Osborne suggests that it is desirable to provide a wide beam which covers substantially the whole width to avoid the need to scan the beam (3:30-45). It would have been prima facie obvious to one of ordinary skill in the art at the time of the invention to incorporate the method of Osborne into that of Heydarpour in order to quickly seal the entire width.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew J. Daniels whose telephone number is (571) 272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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MJD 6/19/06



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